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UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

INSECT SURVEYS AND CONTROL PROJECTS

STANISLAUS NATIONAL FOREST, CALIFORNIA

SEASON 1934

PLANS FOR 1934

By
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Foreman, Insect Control

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INSECT SURVEYS AND CONTROL PROJECTS

STANISLAUS NATIONAL FOREST, CALIFORNIA

SEASON 1934

PLANS FOR 1934

REVIEW:

Early Losses:

The first reported insect infestations of any importance on the Stanislaus forest during the past decade occurred in 1928, when a large number of pine trees in the Merced River drainage were killed by engraver beetles. Persons examined these areas, and reported that the damage consisted largely of top killing and the insects responsible were two or more species of Ips.

Apparently, this outbreak was sporadic in character and of short duration since no further damage was reported until 1930. During 1930, however, a marked increase in Anderson Valley was reported by the Forest Service. An incipient infestation in the Strawberry Recreational region was also revealed and steps were taken to control this outbreak.

Previous Surveys:

However, it was not until 1931 that any systematic insect survey was made of this forest. In that year, during the period, October 1 to 20, a Forest Service crew surveyed several selected areas located in Anderson Valley, West Clavey Basin, Grapevine Creek Basin, Hunter Creek Basin, Strawberry Recreational Area, and Big Creek Basin. The Bureau of Entomology supplemented these surveys by reconnaissance in outlying areas. Salman, in reporting the results of these surveys, states that the 1931 infestation was epidemic in some local areas, chiefly in the lower altitudes and in the southeastern part of the forest. Both ponderosa pine and sugar pine were involved in these losses; the former suffering from depredations by the western pine beetle, Dendroctonus brevicomis, and the latter by the mountain pine beetle, Dendroctonus monticolae. Control was recommended for one area: Anderson Valley.

A reconnaissance made by Salman in 1932, covering in general the same areas surveyed in 1931 and also parts of the Mokelumne River watershed, resulted in securing additional quantitative data and also the apparent trend of these infestations. In his report of the survey of that year he shows that there was a rather high normal infestation in the pine stands on many of the areas examined and conditions approaching epidemic on a few. Those areas where infestations were verging on epidemic were Anderson Valley, Big Creek, Crane Creek and Smith Peak. He recommended control for Big Creek and Crane Creek.

Tendencies:

It can be stated that prior to 1931 no serious insect out-

broods had occurred on this forest and the endemic character of infestations in the pine stands had not been of an aggressive nature. However, the tendencies since 1931 were yearly toward increased infestations as was evidenced by higher annual losses.

The epidemic infestations prior to 1933 were generally localized and were largely confined to the mountain pine beetles in sugar pine. Subsequent surveys have shown that epidemic infestations by this species occurred in the sugar pine stands in Crane Creek Basin and in Big Creek Basin. In the latter area conditions were further complicated by a large amount of sugar pine slash left when logging operations in this basin were terminated.

Epidemic conditions immediately followed the attack and emergence of broods from this slash. The writer has submitted a special report on a study of this slash so quantitative data will not be given in the present paper.

Insect Species:

The insects responsible for the losses in the pine stands prior to 1933 were largely the western pine beetle attacking ponderosa pine, and the mountain pine beetle attacking both ponderosa pine and sugar pine. Other species of insects, engraver beetles (Ips.Spp.), were accountable for a great deal of top killing, and flatheads (Melanophila Spp.) were present in increasingly large numbers each year. In 1932 infestations of Melanophila gentilis had increased to epidemic proportions on certain areas, which resulted in high losses to both yellow pine and sugar pine in the Smith Peak region, near Carl Inn and Sawmill Mountain.

Types and Losses:

The main timber species on the forest are ponderosa pine and sugar pine, usually mixed and associated with white fir, Douglas fir, and incense cedar.

Ponderosa pine occupies the greater part of the forested area in an extensive pure type with oak and incense cedar throughout the lower elevations. A high mixture of sugar pine occurs in the intermediate to higher elevations, forming an almost pure type in local stands principally on north and west slopes. The pine forest is largely restricted to a broad belt lying between the 3000 and 5800 foot contours. This zone of maximum forest growth is also the region of greatest insect activity..

Previous Control Work:

Prior to 1932 insect control work on this forest had been confined to a few relatively small areas. In 1907 a small project was located near Hazel Green, and later, in 1912 control work was carried out in parts of Big Creek Basin and also in Anderson Valley. However, no planned control work was attempted until the spring of 1932, when a project was organized and carried out in Anderson Valley during the period,

March 28 to May 30. This project, costing $4,230, resulted in the treatment of 617 trees with 1,283 M/M volume on a total area of 3,240 acres. The infestation treated was principally of the western pine beetle in ponderosa pine, although the mountain pine beetle and engraver beetle were present in many of the trees treated. Owing to the lateness of the season it was impossible to cover the total infested area.

A small amount of control work was also carried out this same season on the Pinecrest Recreational Area.

Survey of 1933:

A comprehensive survey of the ponderosa-sugar pine stands of the forest was carried out during the summer and fall of 1933. This survey was made possible by the inauguration of the Emergency Conservation Work program and was largely centered at several C.C.C. Camps located throughout the forest. A detailed report of the survey was submitted by the writer in February, 1934.

A total of 271,830 acres were cruised. Of this total 163,870 acres, or 60.5%, is owned by the Forest Service, and 107,960 acres, or 39.5%, is privately owned. The combined insect losses for the 3-year period covered by the survey, 1931 - 1933 inclusive, amounted to 48,817 trees with a volume of 108,823,800 board feet. It was found that the cycle of the infestation had reached a peak in 1932, which was followed by a slight, general decline in 1933.

Rather high losses, verging on epidemic conditions, were revealed in several areas where high stumpage or recreational values were represented. It was proposed to establish control work on a few of these areas, consequently, the middle and south forks of the Tuolumne River drainage basin area, the region about Buck Meadows, and the Pinecrest Recreational Area, were selected for control project areas.

Other areas where rather high annual insect losses persisted are located on the headwaters of the Mokelumne River in Townships 6 and 7 north in Ranges 14, 15, and 16 east; Jamboree area in Townships 1 and 2 north, Ranges 18 and 19 east, and in Anderson Valley, the last being considered for early control provided funds were available.

Control Work of 1933-34:

Control work in the summer and fall of 1933 and the winter of 1934 was carried out under two separate authorities.

E.C.W. Projects:

The first project instituted, that at Buck Meadows, C.C.C. Camp, was conducted under the E.C.W. program and with enlisted men at this camp. Mr. S. St. J. Malven was in direct charge of this project. He had as assistants two spotter foremen appointed under E.C.W. authority. The project area included that part of the forest immediately adjacent to the Buck Meadows Camp, and specifically; the S.E. part of

Township 1S, R 17E; the S.W. corner of Township 1S, R 18E; the N.E. portion of Township 2S, R 17E; and the N.W. part of Township 2S, R 18E. The first period of work on this project was from August 7 to September 26. In all, 1,960 acres were covered by the operations and a total of 111 trees, with a volume of 109,480 board feet, treated. The solar heat method was used in treating the broods.

The second period of work began January 23, 1934, and was completed April 16. A total area of 5,230 acres was covered by these operations. The location of this work was largely east and south of the area worked during the previous summer and fall and was a continuation of that area. That part located in Township 2S, R 19E, was originally a part of the N.I.R.A. project area, but was later transferred to the Buck Meadows project because of shortage of N.I.R.A. funds. A total of 377 trees, containing a volume of 435,200 board feet, was treated during this second period operation. These trees were peeled and burned.

In all, 1,210 man days were utilized.

The total number of trees treated during both periods was 488 trees and the volume of timber in board feet was 544,680. The total acreage covered by the operations was 6,630 acres. Segregation of the treated trees show that 437 trees with a volume of 414,680 board feet were ponderosa pine, and 51 trees with a volume of 130,000 board feet were sugar pine.

The insects involved in this infestation were the mountain pine beetle and flathead barkborers, Melanophila spp., and engraver beetles in the sugar pine; these same species and also the western pine beetle were present in the ponderosa pine. Generally, individual broods consisted of two or more of these species combined. The western pine beetle was the only species found attacking alone.

Another E.C.W. project, though on a much smaller scale, was carried out on the Pinecrest Recreational Area during the period from September 28 to November 6. This project, under the direction of F. J. Solinsky, covered an area of 1,635 acres, and resulted in the treatments of 49 infested trees containing a volume of 117,870 board feet, with an expenditure of 195 man days of E.C.W. enlisted labor. Headquarters for this work were maintained at the Pinecrest C.C.C. Camp. Of the trees treated 15 trees with 43,470 board feet content were ponderosa pine; 27 trees containing 59,370 board feet were sugar pine; 6 trees with 15,600 board feet were Jeffrey pine; and 1 tree with 140 board feet was lodgepole pine. The same species of insects found on the Buck Meadows area were represented here with the addition, however, of the Jeffrey pine beetle (Dendroctonus jeffreyi) which was found in the Jeffrey pine.

E. I. R. A. Projects:

As a result of the E.C.W. surveys made during the summer, which revealed losses in the Tuolumne River watershed approaching epidemic status, it was decided early in the fall to establish a control project in these stands. This project, known as the Stanislaus Tuolumne Control

Project", was financed under E.C.W. authority.

The control area includes the region between the main Tuolumne Canyon and the Scott and Crocker ridges, and extends as far east as the Nather Road. The extent of the area upon which control work was carried out is 27,000 acres.

The Yosemite National Park planned concurrent control work on park lands immediately east of this area, but since there was a strip of privately owned land between these two areas and contiguous to both, an agreement was made whereby control of this strip could be jointly undertaken. Since mutual benefit would result from control of these private stands the Park agreed to do the work on a per tree cost which the Forest Service agreed to pay. As a result of this agreement it was possible to make a clean sweep of the infestation over a large area and secure protection for the stands worked.

Control work by the Forest Service was started November 6, and was continued until December 15, when a heavy fall of snow compelled cessation of the work. Owing to a mild winter work was resumed February 20 and was continued until April 12 when the project was completed. A total of 1811 trees containing a volume of 2,774,870 board feet was treated. Of this total, 1,606 trees with a volume of 1,829,360 board feet were ponderosa pine and 207 trees with a volume of 940,510 board feet were sugar pine. The ponderosa pine trees treated were infested by the western pine beetle, the mountain pine beetle, engraver beetles, and flathead borrborer in both pure and mixed broods. Insects infesting the treated sugar pine trees were the same species, excepting, however, the western pine beetle. Salaries and wages paid on this project were based on the E.C.W. Code. A total of 3,515 man days was expended.

The concurrent control work in the Yosemite Park and on the Cooperative area was completed April 23. On the date of this writing figures were not yet available showing the amount of work accomplished on these contiguous areas.

PLANS FOR 1934 SURVEY AND CONTROL:

In formulating plans for insect surveys and control work in 1934 primary consideration of the present control areas and contiguous stands should take precedence. While a comprehensive survey of the pine regions of the entire forest is desirable and should be made, if time and funds are available, particular attention should be given to those areas that may have a direct influence on stands cleaned during the past season, and of any other areas that it is necessary to treat in order to round out the control now started to include all infestations that may have a bearing on the infestation as a whole. With these main objectives in mind the following plans for 1934 are set up and proposed:

Stanislaus-Tuolumne Control Project Area:

This area should be carefully reexamined sufficiently early

in the season to determine if any fall reclaiming work is necessary to maintain control now established. The contiguous cooperative area between this project and the Park control areas should also be cruised. It is expected that some reclaiming will be necessary in order to eliminate any re-infestation that shows aggressive characteristics. Such work may be done either during the late fall period or early the following spring. The Yosemite Park plans continued work on adjacent control areas within the Park, which is further support of this plan.

Buck Meadows:

This is a large area supporting a medium stand of ponderosa-sugar pine type. There are no definite barriers sufficient to form boundaries for control units. Therefore, the infestation must be considered as a whole. The control work of 1933-34 on this area was arbitrarily bounded and was not made secure from continuous infestations on the south and west, although the work done was of considerable value in checking current losses on the area worked as well as securing protection for the adjoining H.I.E.R. projects to the east. Roughly, this area includes the region south of the Tuolumne Canyon and from Scott Ridge on the east, westward to the edge of the pine stands along the west boundary of the forest. The southern limits are reached at a point about 2 miles south of the Kingsley R.S. and thence N.E. along the line between Townships 2 and 3 south. A good deal of the forest cover in the southern and western limits is of inferior type, though harboring a rather high infestation of Dendroctonus beetles and flat-head borers. It is questionable if control work on these areas is warranted, except, perhaps, as a measure undertaken to eliminate these infestations as possible sources of re-infestation of treated stands. The values at stake are low and for this reason, alone, control work would not be feasible.

It is recommended that a comprehensive survey of the area be made during the coming season. Present plans provide for a C.C.C. Camp at Buck Meadows during the winter of 1934-35. If these plans materialize control of a large portion of the area could be accomplished with enlisted labor. Previous C.C.C. control work on the area has demonstrated its effectiveness and comparative low cost. Continuation of this work at Buck Meadows is highly desirable.

Anderson Valley:

No control work in this area has been done since May, 1933. A survey of the area made in October, 1933, revealed consistent high losses throughout the stands. A subsequent examination made in March, 1934, indicated that the infestation was increasing. Similar conditions were found on Montgomery Ridge, a small area immediately west. In a consideration of any control work in this region both these areas should be included in the plans as they are so closely connected that the infestations are not separable. The stands are considered as having relatively high stumpage value, and for this reason control work is warranted providing the infestations continue with high losses.

This area should be re-surveyed in 1934 with the expectation that control work will be necessary in the fall.

Jamboree Region:

The area north of the Tuolumne Canyon and east of the Clavey River has been given the name of Jamboree Region since it is mainly accessible from the Jamboree Ranger Station located in the south central part. The area is mainly rugged in topography and is greatly scarred by stream canyons traversing it in a north to south direction. Chief among these are Jamboree Creek, Corral Creek, and the Cherry River. It lies immediately across the Tuolumne Canyon from the Tuolumne Control project area. The timber is of high merchantible quality and value.

Prior to 1931 the insect losses were of a low endemic character. Salman reported an increase in these infestations in 1931, which were further amplified in 1932. The U.S.F.S. survey of 1933 showed that there had been a decrease in that year of about 30% from the 1932 high.

A cursory examination of the area made in March, 1934, indicated a very pronounced increase which was strikingly apparent on the plateau between Granite Creek and the Cherry River; and also north of North Mountain where it extended into the Yosemite Park.

It is recommended that a very complete survey be made of this region in 1934. Because of the high values represented and its close proximity to the Tuolumne control project, control work would be warranted in the event that infestations reach an epidemic status.

Strawberry Recreational Area:

This area has had a varied history, and principally because of its high recreational values and proximity to experimental plots, has received a good deal of attention for the past several years. Salman reported that the 1931 loss was three times that of 1930. His report for 1932 shows that the infestation had receded to an endemic status. However, in 1933 Dunning reported a sizable infestation and recommended control work. The writer visited the area in September and found summer brood trees pretty generally distributed over the Strawberry and Pinecrest units. Inasmuch as control resources were available through the C.C.C. Camp at Pinecrest sufficient men were detailed from this camp who, working under a crew of foremen from the Hetchetchy camp, were successful in treating the late summer and fall brood trees on an area of 1,035 acres. This work was done under the immediate supervision of Foreman F. J. Solinsky. There has been no examination of the area since this control work.

Recommendations are that the area be examined in 1934 to determine the effect of the control work and to ascertain the status of any re-infestation.

Hetchetchy Area:

This area, as organized in the S.O.S. survey of 1933, covers that part of the Hetchetchy River watershed lying in Townships 5, 6, and 7 north and within Ranges 14, 15, and 16 east. The forest type is composed of ponderosa pine, sugar pine and fir, the last two species predominating on the north exposures. The area, as at present organized, consists of 4 units; Derrington, Licking Fork, Hetchetchy, and Blue Creek. The timber is largely under private ownership.

Salman reported that a reconnaissance made in 1932 indicated an average loss for that year of 80 trees per section.

The area was included in the S.O.S. survey of 1933. The results of this survey showed that the 1932 loss was approximately 800% greater than that of 1931, but was followed by a sharp decline in 1933, the loss for that year averaging 63 trees per section. Thus, it seems that the cycle has followed the general trend throughout the forest.

Since recent infestations have not shown epidemic tendencies control work for the present is not recommended. However, if practicable, the area should be surveyed during the season of 1934. Due to the past mild winter, and anticipated long, dry summer, favorable to beetle activity, increases in established infestations are expected. Because of these critical imminent conditions these infestations should be closely watched.

Other Areas:

Infestations on other areas of the forest have been reported from time to time. If feasible, it will be well to make a preliminary survey, or at least reconnaissance, of these areas in 1934. One such area lies between the north and middle forks of the Stanislaus River in Townships 4 and 5 north, in Ranges 16 and 17 east.

If possible, the cut over lands in the North Fork Tuolumne River drainage basin above Longbarn should be examined. A pronounced killing of reserve stock in these cut stands was noted in the fall of 1933.

John E. Patterson
Foreman, Insect Control

MAP OF

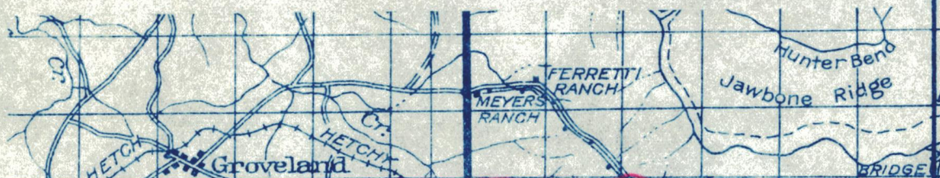
CONTROL AREAS

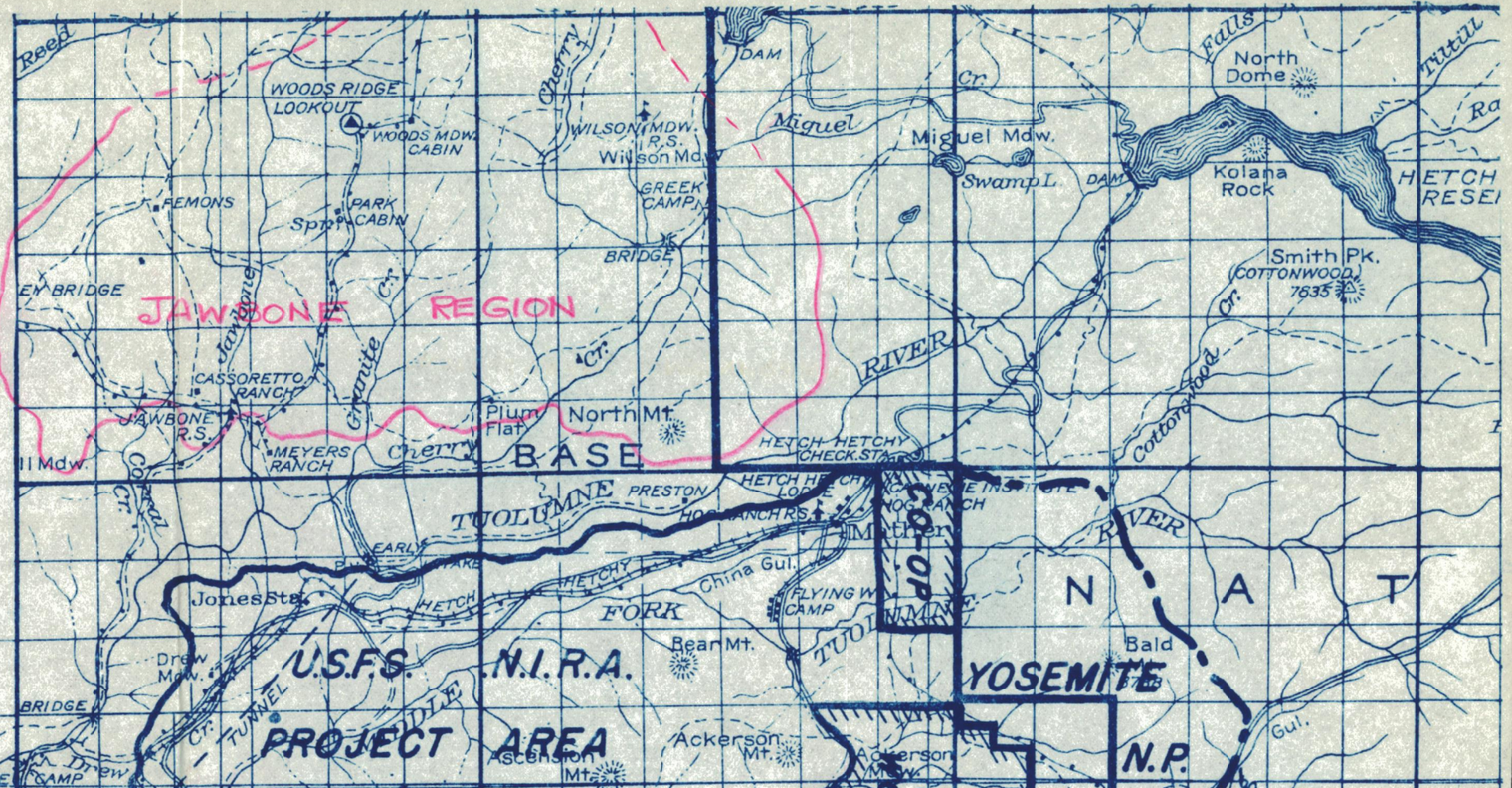
STANISLAUS N.F. - YOSEMITE N.P.

NIRA AND ECW PROJECTS
AND SURROUNDING INFESTATIONS

1933 - 1934

PLANS FOR 1934





STANISLAUS NATL. FOREST

1933 REGIONAL SURVEY

UNIT BOUNDARY

YOSEMITE N.P. ACQUISITION

PLANS FOR 1934